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Some desmids from Newfoundland

JOSEPH AUGUSTINE CUSHMAN

During the past year material has been obtained from Newfoundland which has added many species to the few which were previously known to belong to the flora of the island. The greatest number of species were obtained from material collected by Mr. Owen Bryant at St. Anthony in May, 1906. Some of the species were not previously known from North America. In addition to this material a number of species were obtained from *Utricularia* collected by Waghorne at Bay of Islands. This added several species not obtained in any of the other material. Included in the present paper are the species found by the writer in Dr. G. M. Allen's material from Rose au Rue, and published in this journal for November, 1904. In certain cases the synonymy has been altered and in these species the corrections are here made. Material has thus been obtained from three points on the island fairly remote from one another. As a result of the work seventy-two species included in seventeen genera are here noted from Newfoundland. None were recorded from the island previous to the former paper.

MESOTAENIUM Näg. 1849

1. MESOTAENIUM DEGREYI Turn.
Length 83 μ; breadth 20 μ. Occasional, St. Anthony.

2. MESOTAENIUM ENDLICHERIANUM Näg.
Length 35 μ; breadth 12 μ. Very common, Rose au Rue.

CYLINDROCYSTIS Menegh. 1838

3. CYLINDROCYSTIS BREBISSONII Menegh.
Length 54 μ; breadth 18 μ. Fairly common, St. Anthony.

4. CYLINDROCYSTIS AMERICANA MINOR Cushman.
Length 40 μ; breadth 18 μ. Common, Rose au Rue.

5. CYLINDROCYSTIS DIPLOSPORA Lund.

Length 71 μ; breadth 37 μ; isthmus 33 μ. Occasional, St. Anthony.

NETRIUM Näg. 1849

6. NETRIUM DIGITUS (Ehrenb.) Itzigs. & Rothe.

Length 160–190 μ; breadth 63–80 μ. Common at Rose au Rue and St. Anthony. The prevailing form is short and much swollen at the central portion, thence narrowing fairly rapidly to the apex.

7. NETRIUM NAEGELII (Bréb.) W. & G. S. West.

Length 140–145 μ; breadth 37 μ. Occasional, Bay of Islands and St. Anthony.

PENIUM Bréb. 1844

8. PENIUM LIBELLULA INTERMEDIUM Roy & Biss.

Length 98–110 μ; breadth 24–29 μ. Occasional, Rose au Rue.

CLOSTERIUM Nitzsch. 1817

9. CLOSTERIUM CYNTHIA DeNot.

Length 128 μ; breadth 18 μ; apices 5.2 μ. Occasional, St. Anthony.

10. CLOSTERIUM ANGUSTATUM Kütz.

Length 310–560 μ; breadth 19–23 μ; apices 12 μ. Fairly common at St. Anthony.

Some of the specimens of this species show very interesting conditions of the surface ornamentation. One specimen, for instance, was divided into five nearly equal portions. The central portion was somewhat tumid, a character noted in many of the specimens from this material. The striae on this portion were very distinctly twisted laterally. The end segments show, even more distinctly, the twisting, subspiral arrangement of the striae. This twisting is developed more fully as the ends are approached. The intermediate areas of the membrane which were formed later by division do not keep to the subspiral striae, but have them in the normal, straight form. Nearly all the specimens from this locality show more or less of the subspiral arrangement of the costae.

11. CLOSTERIUM STRIOLATUM Ehrenb.

Length 275 μ; breadth 27 μ; apex 12 μ. Common, St. Anthony.

12. CLOSTERIUM PARVULUM Näg.

Length 115 μ; breadth 10 μ. Common, St. Anthony.

13. CLOSTERIUM TOXON West.

Length 290–325 μ; breadth 9–9.5 μ; apices 6 μ. Fairly common, St. Anthony.

DOCIDIUM Bréb. 1844

14. DOCIDIUM BACULUM Bréb.

Length 340 μ; breadth 21 μ; apex 13.3 μ. Common, St. Anthony.

PLEUROTAENIUM Näg. 1849

15. PLEUROTAENIUM CORONATUM (Bréb.) Rabenh.

Length 558 μ; breadth 60 μ; apex 42 μ. Common, Bay of Islands.

16. PLEUROTAENIUM EHRENBERGII (Bréb.) DeBary.

Length 405 μ; breadth 30 μ; apex 22 μ. Occasional, St. Anthony.

TETMEMORUS Ralfs. 1844

17. TETMEMORUS BREBISSONII TURGIDUS Ralfs.

Length 174–198 μ; breadth 40–44 μ. Abundant, Rose au Rue.

TETMEMORUS BREBISSONII MINOR DeBary.

Length 78 μ; breadth 18 μ; isthmus 13.5 μ. Common, St. Anthony.

TETMEMORUS BREBISSONII MINIMUS W. & G. S. West.

Length 62–65 μ; breadth 15–16 μ. Abundant, Rose au Rue.

On second examination, the form from this locality, reported in the previous paper as *T. minutus* DeBary, should be placed here.

18. TETMEMORUS GRANULATUS (Bréb.) Ralfs.

Length 190–204 μ; breadth 42–53 μ. Common at Bay of Islands and St. Anthony.

19. TETMEMORUS LAEVIS (Kütz.) Ralfs.

Length 133 μ; breadth 25 μ. Common, Rose au Rue.

EUASTRUM Ehrenb. 1832

20. EUASTRUM CRASSUM (Bréb.) Kütz.

Length 170 μ; breadth 85 μ; isthmus 21 μ; breadth of polar lobe 45 μ. Fairly common, St. Anthony.

21. EUASTRUM PINNATUM Ralfs.

Length 120–126 μ; breadth 57–60 μ; isthmus 16–18 μ; polar lobe 31–33 μ. Common, St. Anthony.

22. EUASTRUM OBLONGUM CEPHALOPHORUM West.

Length 170 μ; breadth 105 μ; isthmus 26 μ; polar lobe 75 μ. Occasional, Bay of Islands.

23. EUASTRUM AMPULLACEUM Ralfs.

Length 87–110 μ; breadth 47–72 μ; isthmus 15–20 μ; polar lobe 22–31 μ. Rose au Rue, Bay of Islands, and St. Anthony.

This is the most common species of the genus as far as the material examined shows. It was subject to little variation in form.

24. EUASTRUM OBESUM Josh.

Length 62 μ; breadth 34 μ; isthmus 8.2 μ; polar lobe 16 μ. Rare, St. Anthony. This is the first record for North America for this species. It was typical in its form and size.

25. EUASTRUM DIVARICATUM Lund.

Length 43 μ; breadth 37 μ; isthmus 6 μ; polar lobe 18 μ. Occasional, St. Anthony.

26. EUASTRUM ELEGANS (Bréb.) Kütz.

Length 25 μ; breadth 15 μ; isthmus 4 μ. Rare, Rose au Rue.

27. EUASTRUM BINALE (Turp.) Ehrenb.

Length 18 μ; breadth 15 μ. Rare, Rose au Rue.

28. EUASTRUM DENTICULATUM (Kirchn.) Gay.

Length 31 μ; breadth 23 μ; isthmus 5 μ; polar lobe 18 μ. Common, St. Anthony.

29. EUASTRUM PECTINATUM INEVOLUTUM W. & G. S. West.

Length 60–62 μ; breadth 42–44 μ; isthmus 9–12 μ; polar lobe 23–25 μ; thickness 25–27 μ. Very common, St. Anthony. This is the first North American record for this variety.

30. EUASTRUM FISSUM AMERICANUM Cushman.

Length 38 μ; breadth 23 μ; isthmus 6 μ; polar lobe 16 μ. Occasional, St. Anthony.

31. EUASTRUM ALLENII Cushman.

Length 105 μ; breadth 49 μ; isthmus 18 μ; polar lobe 33 μ. Occasional, Rose au Rue.

MICRASTERIAS Ag. 1827

32. MICRASTERIAS PINNATIFIDA (Kütz.) Ralfs.

Length 66 μ; breadth 75 μ; apical lobe 56 μ. Occasional, Bay of Islands.

33. MICRASTERIAS TRUNCATA (Corda) Bréb.

Length 78 μ; breadth 78 μ; isthmus 16 μ; apical lobe 56 μ. Common, St. Anthony.

34. MICRASTERIAS CONFERTA NOVAE-TERRAE Cushman.

Length 102 μ; breadth 93 μ; isthmus 12 μ; apical lobe 37 μ. Frequent, Rose au Rue.

35. MICRASTERIAS DENTICULATA Bréb.

Length 205 μ; breadth 170 μ; isthmus 30 μ: apical lobe 102 μ. Occasional, Bay of Islands.

MICRASTERIAS DENTICULATA ANGULOSA (Hantzsch.) W. & G. S. West.

Length 330 μ; breadth 210 μ; isthmus 36 μ; apical lobe 58 μ. Occasional, St. Anthony.

COSMARIUM Corda. 1834

36. COSMARIUM SUBUNDULATUM Wille.

Length 58 μ; breadth 41 μ; isthmus 16 μ. Common, St. Anthony.

37. COSMARIUM CUCUMIS (Corda) Ralfs.

Length 70–75 μ; breadth 39–42 μ; isthmus 19–21 μ. Common, St. Anthony.

38. COSMARIUM CONTRACTUM JACOBSENII (Roy) W. & G. S. West.

Length 43 μ; breadth 24 μ; isthmus 6 μ. Occasional, St. Anthony.

COSMARIUM CONTRACTUM ELLIPSOIDEUM (Elfv.) W. & G. S. West.

Length 33.5 μ; breadth 27 μ; isthmus 8 μ. Common, St. Anthony.

39. COSMARIUM HAMMERI Reinsch.

Length 41 μ; breadth 32 μ; isthmus 12 μ. Occasional, Bay of Islands.

40. COSMARIUM NYMANNIANUM Grun.

Length 43 μ; breadth 20 μ; isthmus 8 μ. Common, St. Anthony.

41. COSMARIUM GRANATUM Bréb.

Length 27 μ; breadth 20 μ; isthmus 7 μ. Common, St. Anthony.

42. COSMARIUM PSEUDONITIDULUM Nordst.

Length 53 μ; breadth 42 μ; isthmus 12 μ. Occasional, Bay of Islands.

43. COSMARIUM PYRAMIDATUM Bréb.

Length 87 μ; breadth 56 μ; isthmus 19 μ. Common, St. Anthony.

44. COSMARIUM PSEUDOPYRAMIDATUM Lund.

Length 50–56 μ; breadth 31–33 μ; isthmus 9–10 μ. Very common, Rose au Rue.

45. COSMARIUM VENUSTUM (Bréb.) Arch.

Length 37 μ; breadth 26 μ; isthmus 6.5 μ; apex 15 μ. Common, St. Anthony.

46. COSMARIUM CONNATUM Bréb.

Length 72 μ; breadth 56 μ; isthmus 45 μ. Rare, St. Anthony.

47. COSMARIUM IMPRESSULUM MINOR Turner.

Length 16 μ; breadth 12 μ; isthmus 3.5 μ. Common, Rose au Rue.

48. COSMARIUM SUBSPECIOSUM Nordst.

Length 50 μ; breadth 40 μ; isthmus 18.5 μ. Occasional, St. Anthony.

XANTHIDIUM Ehrenb. 1834

49. XANTHIDIUM ARMATUM (Bréb.) Rabenh.

Length without spines 148 μ; breadth without spines 93 μ, with spines 115 μ; isthmus 45 μ. Fairly common, Rose au Rue.

This species was also common in the material from St. Anthony, but was very much smaller than in that from Rose au Rue. The spines were for the most part simple, those with bifurcate spines being the exception. A considerable variation was noticed in the specimens from Rose au Rue. An average specimen from St. Anthony measures: length without spines 96 μ; breadth without spines 67 μ; with spines 80 μ; isthmus 32 μ.

50. XANTHIDIUM ANTILOPAEUM (Bréb.) Kütz.

Length with spines 96 μ; without 58 μ; breadth with spines 80 μ, without 46 μ; isthmus 15 μ. Occasional, St. Anthony.

XANTHIDIUM ANTILOPAEUM MINNEAPOLIENSE Wolle.

Length with spines 87 μ, without 68 μ; breadth with spines 75 μ; without 53 μ. Occasional, St. Anthony.

The specimens of this variety had the lateral spines below the chain of granules. The cells in the variety were larger than in the preceding but the lateral spines were very much shorter.

51. XANTHIDIUM CRISTATUM Bréb.

Length with spines 72 μ; breadth with spines 56 μ, without spines 40 μ; isthmus 12 μ. Common, St. Anthony.

ARTHRODESMUS Ehrenb. 1838

52. ARTHRODESMUS CONVERGENS Ehrenb.

Length with spines 45 μ, without 32 μ, breadth with spines 45 μ, without 28 μ; isthmus 6.5 μ. Common, St. Anthony.

53. ARTHRODESMUS QUADRIDENS Wood.

Length 34 μ; breadth with spines 50 μ, without 34 μ; isthmus 9 μ. Common, St. Anthony.

54. ARTHRODESMUS INCUS RALFSII W. & G. S. West.

Length 24 μ; breadth with spines 40 μ, without 19 μ; isthmus 7 μ. Common, St. Anthony.

ARTHRODESMUS INCUS LONGISPINUS Eichl. & Racib.

Length with spines 46 μ, without 26 μ; breadth with spines 34 μ, without 14 μ; length of spines 15 μ; isthmus 5 μ. Occasional, St. Anthony.

STAURASTRUM Meyen. 1829

55. STAURASTRUM ARISTIFERUM Ralfs.

Length 40 μ; breadth without spines 68 μ; isthmus 9 μ. Occasional, St. Anthony.

56. STAURASTRUM DUBIUM West.

Length 28 μ; breadth 22 μ; isthmus 10 μ. Very common, Rose au Rue.

57. STAURASTRUM LONGISPINUM BIDENTATUM (Wittr.) Cushman.

Length 90 μ; breadth with spines 108 μ, without 83 μ; isthmus 40 μ. Rare, St. Anthony.

58. STAURASTRUM ARCUATUM Nordst.

Breadth with processes 45–50 μ; isthmus 8.5 μ. Occasional, St. Anthony.

59. STAURASTRUM NANUM Wolle.

Length 25 μ; breadth with spines 31 μ, without 22 μ; isthmus 8 μ. Common, Rose au Rue.

60. STAURASTRUM JOHNSONII W. & G. S. West.

Length 56 μ; breadth 84 μ; isthmus 9.5 μ. Occasional, St. Anthony.

61. STAURASTRUM GRACILE Ralfs.

Length with processes 58 μ, without 15 μ; isthmus 8 μ. Not common, St. Anthony.

62. STAURASTRUM CRENULATUM (Näg.) Delp.

Breadth 25–37 μ; isthmus 9 μ. Rare, Rose au Rue. Frequent, St. Anthony.

63. STAURASTRUM MACROCERUM Wolle.

Length 48 μ; breadth with processes 100 μ; without 28 μ; isthmus 18 μ. Common, St. Anthony.

64. STAURASTRUM ECHINATUM Bréb.

Length without spines 45 μ; breadth with spines 50 μ, without 37 μ; isthmus 16 μ. Occasional, St. Anthony.

65. STAURASTRUM EUSTEPHANUM (Ehrenb.) Ralfs.

Breadth with processes 58 μ; isthmus 13 μ. Occasional, St. Anthony.

66. STAURASTRUM ARCTISCON (Ehrenb.) Lund.

Breadth with processes 100 μ, without 50 μ; isthmus 25 μ. Rare, St. Anthony.

SPHAEROZOSMA Corda. 1835

67. SPHAEROZOSMA EXCAVATUM Ralfs.

Breadth of filament 14 μ; length of cells 12 μ; isthmus 6.5 μ. Rare, St. Anthony.

DESMIDIUM Ag. 1824

68. DESMIDIUM SWARTZII Ag.

Breadth of filament 34 μ; length of cell 18 μ. Rare, St. Anthony.

69. DESMIDIUM COARCTATUM Nordst.

Maximum breadth of filament 43.5 μ, minimum 31 μ; length 26 μ. Rare, St. Anthony.

70. DESMIDIUM QUADRATUM Nordst.

Breadth of filament 27–29 μ; length of cell 21–23 μ. Rare, St. Anthony.

71. DESMIDIUM BAILEYI (Ralfs) DeBary.

Breadth of filament 23–25 μ. Rare, Rose au Rue and St. Anthony.

GYMNOZYGA Ehrenb. 1840

72. GYMNOZYGA MONILIFORMIS Ehrenb.

Breadth of filament 22 μ; length of cell 28 μ. Occasional, Bay of Islands and St. Anthony.

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